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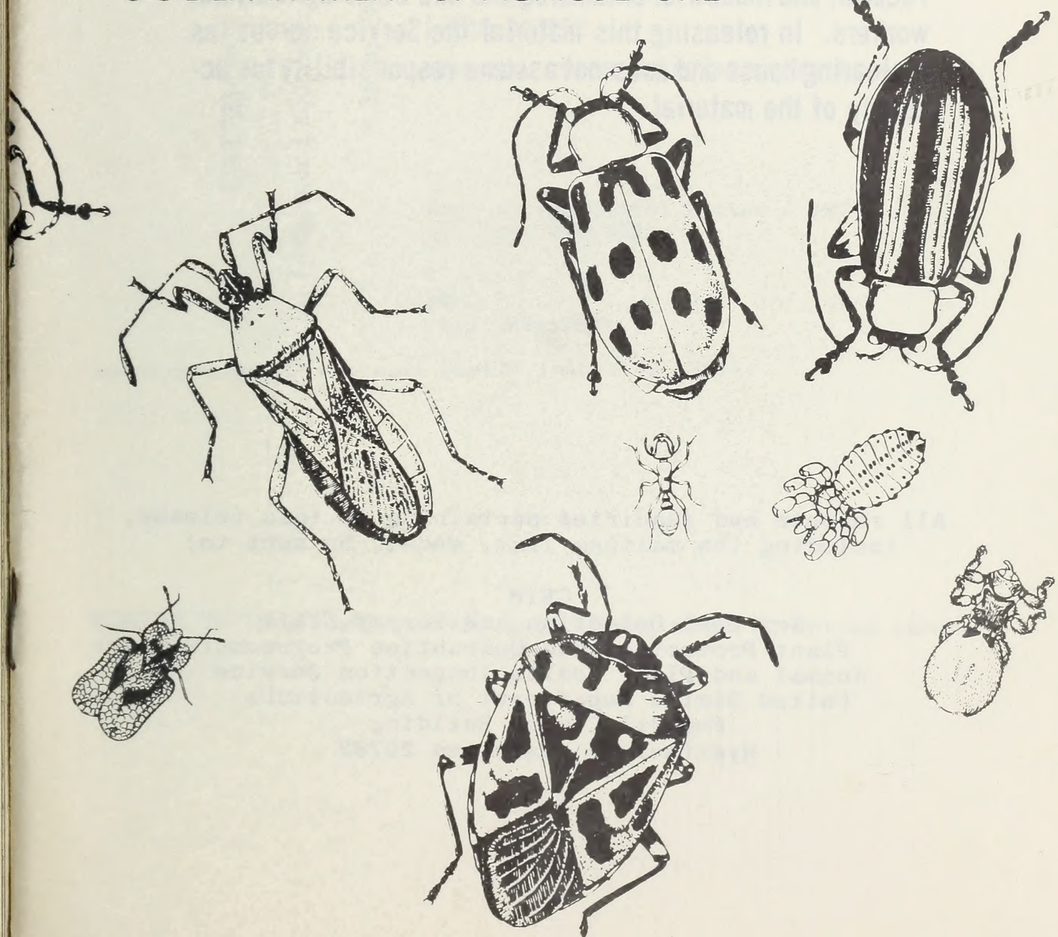

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
NEW PEST DETECTION AND SURVEY STAFF

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a clearing house and does not assume responsibility for accuracy of the material.

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMY CUTWORM outbreak in New Mexico. (p. 241).

CORN LEAF APHID at threatening and severe levels on small grains in New Mexico and Arizona. (p. 241).

Mild winter failed to reduce SOUTHERN PINE BEETLE to usual levels in Tennessee. (p. 243).

PINE ROOT COLLAR WEEVIL expected to continue severe in Michigan. (p. 257).

Detection

For new county and island records see page 246.

Some First Appearances of the Season

TARNISHED PLANT BUG in Oklahoma. COLORADO POTATO BEETLE and BEAN LEAF BEETLE in Alabama.

Special Reports

Summary of Insect Conditions in the United States - 1974
  Deciduous Fruits and Nuts (pp. 247-252).
  Citrus (p. 252).
  Small Fruits (p. 252).
  Ornamentals (pp. 253-254).
  Forest and Shade Trees (pp. 254-262).

Distribution of Elm Leaf Beetle (map). (p. 261).

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SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - NEW MEXICO - Up to 7 per linear foot noted in wheat in Roosevelt and Curry Counties. Ranged 15-20 per square yard in range grasslands in Roosevelt and Lincoln Counties. Hundreds noted migrating into computer buildings at Cannon Air Force Base, Curry County, causing potential mechanical problems to aircraft approach facilities. Outbreak appears to cover about 1,000 miles throughout east-central area. (N.M. Coop. Rpt.). UTAH - Heavy on range at Cedar City airport in Iron County; suggests possible spring problem. (Roberts, Esplin).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - First nymphs of season noted in Lone Tree Canyon. In ideal areas, populations reached 3 per 100 sweeps in the northern area from Merced north. Nymphs light (3 per 100 sweeps) in the South Los Banos Hills and Little Panoche Canyon. Populations heavier (8 per 100 sweeps) in Big Panoche Canyon with nymphs, spring and overwintering adults found. Overwintering adults still contain eggs in coastal area. In the desert areas, actual treatment began on March 7 and total of 2,992 acres treated. Windy weather hampered treatments. Populations in some areas still range 20-30 per sweep. (Cal. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Ranged 50-100 per linear foot on barley in Chaves County, some honeydew evident. (N.M. Coop. Rpt.). ARIZONA - Ranged 50-300 per row foot at base of 14-inch small grains in Deer Valley area of Maricopa County. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - MISSOURI - Light in 3 of 8 wheatfields checked in southwest area, ranged 0-16 per row foot. (Munson). ARKANSAS - Only trace populations noted in southeastern area, parasitism 50+ percent. (Boyer). OKLAHOMA - Light to moderate in most wheat in Jackson County, ranged up to 400 per linear foot in some fields. Light in Washita, Caddo, and Custer Counties. (Okla. Coop. Sur.). NEW MEXICO - Populations still very light and scattered. Ranged 10-12 per linear foot in one barley field near Roswell, Chaves County. Heavy lady beetle populations active in wheatfields in Curry County where light greenbug activity noted. (N.M. Coop. Rpt.). ARIZONA - Ranged 0-30 per row foot in barley and wheat fields at Salt River Valley, Maricopa County. Small grain fields at this location in excellent shape. (Ariz. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Overwintering survival in field corn stalks very high, probably due to rather mild winter. The survival rate for the 7 of 9 districts surveyed averaged 87 percent survival, compared to a "normal" average of about 75 percent. Only normal mortality was counted; no account made for mortality due to agricultural practices. (Cooley).

SMALL GRAINS S

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Light, ranged 0-30 per linear foot on wheat in Jackson, Washita, Caddo, and Custer Counties. (Okla Coop. Sur.).

TURF, PASTURES, RANGELAND

SOUTHERN CHINCH BUG (Blissus insularis) - ALABAMA - All stages severely attacked St. Augustine grass in lawn at Hollinger's Island, Mobile County. (Goff, Lockhart).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Larvae hatched in Bedford County by March 19. Small larvae infested 60 percent of tips in one field, no defoliation occurred. No larvae noted in 4 fields surveyed in Culpeper County March 19. (Allen). TENNESSEE - Surveys in Rutherford and Wilson Counties indicate hatching occurring at rapid rate. First-instar larvae noted in all alfalfa fields surveyed. Populations below treatment levels, larvae ranged 24-26 per 50 tips. (Gordon, Bruer). MISSOURI - Larvae averaged 6 per 10 stems in alfalfa in south-central area. (Huggans). First and second-instar larvae ranged 2-11 (average 4) per 10 stems in southwest area. (Munson). ARKANSAS - First larvae of season noted in Washington County. (Dumas).

OKLAHOMA - Terminal infestations of alfalfa weevil ranged 50-100 percent (1-4 larvae per terminal) in alfalfa in Washita, Caddo, and Custer Counties, 40-50 percent in Harmon County, and moderate to heavy in Jackson, Kiowa, and Comanche Counties. Populations ranged 20-68 percent (usually one small larva per terminal) in Logan, Kingfisher, Oklahoma, Lincoln, and Payne Counties with only light damage. (Okla. Coop. Sur.). NEW MEXICO - Larvae active in alfalfa at Fort Sumner, De Baca County, and in Curry County. Larvae, second or third instar, present in one in five terminals. (N.M. Coop. Rpt.). CALIFORNIA - Complex of H. postica and H. brunneipennis (Egyptian alfalfa weevil) adults appeared early. Larvae require treatment in San Joaquin Valley and southern desert areas. (Cal. Coop. Rpt.).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - One field of alfalfa noted with tops blasted by larval feeding at Gila Indian Reservation, Maricopa County. Treatments applied. Larvae averaged 194 per 100 sweeps in a west side alfalfa field at Maricopa County. (Ariz. Coop. Sur.).

PEA APHID (Acyrthosiphon pisum) - OKLAHOMA - Ranged 5-75 per square foot in alfalfa in Logan, Kingfisher, Oklahoma, Lincoln, and Payne Counties. Light to moderate in Harmon, Kiowa, and Jackson Counties. (Okla. Coop. Sur.). NEW MEXICO - Ranged 2-10 per linear foot in young alfalfa near Roswell, Chaves County. Ranged 1-2 per square yard in De Baca County, parasitized "mummies" fairly common in one field. (N.M. Coop. Rpt.). ARIZONA - Averaged 1,000+ per 100 sweeps at a west side Maricopa County field, damage heavy. (Ariz. Coop. Sur.). CALIFORNIA - Increased on alfalfa to extent many fields require treatment in Imperial County. (Cal. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - First adult of season noted on alfalfa in Payne County. (Okla. Coop. Sur.).

SUGAR BEETS

GREEN PEACH APHID (*Myzus persicae*) - ARIZONA - Averaged 350 per whole plant on 52 sugar beet experimental plots in Mesa area of Maricopa County, treatments planned. (Ariz. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) - ALABAMA - Adults emerged March 7 and earlier than usual in northern Crenshaw County; fed on potato shoots as they emergence occurred in home garden. Emergence from hibernation into gardens expected to be heavy this spring. (Seibels).

BEANS AND PEAS

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - ALABAMA - Several adults noted on beans in home gardens in northern Crenshaw County. This is first report of the season. (Seibels).

GENERAL VEGETABLES

GREEN PEACH APHID (*Myzus persicae*) - CALIFORNIA - This species along with *Frankliniella occidentalis* (western flower thrips), and *Trichoplusia ni* (cabbage looper) required treatment on late lettuce during warm periods in Imperial County. (Cal. Coop. Rpt.).

DECIDUOUS FRUITS AND NUTS

CARPENTERWORM (*Prionoxystus robiniae*) - SOUTH CAROLINA - Taken from pecan trees in Spartanburg County March 14, 1975, by C. McCown. Determined by D.K. Pollet. This is a new county record. (McCaskill).

EUROPEAN FRUIT LECANIUM (*Lecanium corni*) - CALIFORNIA - Scale treatment on prune orchards underway in northern counties. Wet weather inhibited spray treatment. (Cal. Coop. Rpt.).

WALNUT SCALE (*Quadraspidiotus juglansregiae*) - CALIFORNIA - Up to 10 per twig noted on plum trees at Fallbrook, San Diego County. (Cal. Coop. Rpt.).

ORNAMENTALS

CITRUS WHITEFLY (*Dialeurodes citri*) - FLORIDA - Adults at high level on spring flush growth of numerous ornamentals, persimmon, and citrus at Gainesville, Alachua County. (Fla. Coop. Sur.).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - NORTH CAROLINA - Infestation present in 89 of 100 counties. State continues to lead the South in damage. From State and Federal lands, 47.6 million board feet of beetle-killed timber salvaged July 1, 1974, through January 31, 1975. Probability high that forest owners and homeowners will experience losses in 1975 equal to 1974. (USFS). TENNESSEE - Very heavy on pines in Union, Jefferson, Anderson, Sevier, Knox, and Cocke Counties. Damage heavy in these counties and severe damage expected in future. Mild winter weather failed to reduce populations to normal overwintered levels. (Hammett, Pless).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - An early developing brood of numerous larvae infested leaves of wild cherry in northern Crenshaw County. This is much earlier than usual for this area. (Seibels et al.). MISSISSIPPI - Activity noted in southern one-third of State. (Robinson).

FOREST TENT CATERPILLAR (Malacosoma disstria) - SOUTH CAROLINA - Survey of 200 acres in Charleston and Dorchester Counties revealed 45 egg masses per tree, same area of heavy infestation and defoliation in 1974. Severe defoliation expected unless treatments applied, 90 percent of eggs viable. (Remion).

OLETHREUTID MOTHS (Rhyacionia spp.) - NEW MEXICO - Mature pupae averaged 3 per tip on ponderosa pine trees at Portales, Roosevelt County. Tree stunting severe. (N.M. Coop. Rpt.).

MOURNINGCLOAK BUTTERFLY (Nymphalis antiopa) - NEW MEXICO - Adults active for about 21 days with oviposition noted. (N.M. Coop. Rpt.).

A CONIFER APHID (Cinara tujafilina) - OKLAHOMA - Moderate to heavy on arborvitae in Stillwater, Payne County. (Okla. Coop. Sur.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of two cases reported from continental U.S. during period March 9-15, both from Texas. Total of 133 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 23,837,000, all released in Texas. Total of 131,843,200 sterile flies released in Mexico. (Vet. Serv.).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae averaged 2.9 per animal on backs of 25 Holstein dairy cows of various ages in Fayette County. (Barnett). OKLAHOMA - H. lineatum (common cattle grub) moderate in backs of Haskell County cattle. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Averaged less than 10 per head on cattle in Oktibbeha County. (Robinson).

A MOSQUITO (Culiseta inornata) - OKLAHOMA - Some adults emerged in Payne County, larvae survived winter despite being frozen several times. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

BOXELDER BUG (Leptocoris trivitattus) - COLORADO - Adults beginning to move out of hibernating quarters during warm periods in Jefferson County. (APHIS, PPQ).

STORED PRODUCTS

CASEMAKING CLOTHES MOTH (Tinea pellionella) - SOUTH CAROLINA - Specimens collected from residence in Aiken County March 7, 1975, by W.A. Beasley. Determined by J.B. Kissam. This is a new county record. (McCaskill).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - ARIZONA - Larvae averaged 28 per 100 sweeps of alfalfa and 3 per row foot of 14-inch small grains in Maricopa County. (Ariz. Coop. Sur.). OKLAHOMA - Adults increasing in wheat and alfalfa in Jackson and Greer Counties. Many eggs noted in Comanche County alfalfa. Adults light in most alfalfa fields in Logan, Oklahoma, and Payne Counties. (Okla. Coop. Sur.).

A BRACONID WASP (Lysiphlebus testaceipes) - OKLAHOMA - Parasitism of greenbug (Schizaphis graminum) by this species up to one percent in Jackson County wheat. (Okla. Coop. Sur.). ARIZONA - Heavy L. testaceipes populations noted in small grain fields in Deer Valley area of Maricopa County. Parasitism of Rhopalosiphum maidis (corn leaf aphid) noted. (Ariz. Coop. Sur.).

AN ICHNEUMON WASP (Bathyplectes curculionis) - INDIANA - Pupation of cocoons exposed to environment 80 percent complete in Knox County by March 20. (Wilson).

ALFALFA LEAFCUTTER BEE (Megachile rotundata) - WASHINGTON - Chalkbrood disease (Ascosphaera sp.) found in 90 percent of board samples from December 1974 to March 1975. Highest rate of infection per board 22.4 percent. (Alfalfa Seed Pest Mgmt.).

HONEY BEE (Apis mellifera) - OKLAHOMA - First of the season noted active on early blooming flowers in Payne County. (Okla. Coop. Sur.).

LIGHT TRAP COLLECTIONS

ARIZONA - Mesa, 3/10-16, BL, BEET ARMYWORM (Spodoptera exigua) 31, BLACK CUTWORM (Agrotis ipsilon) 4, VARIEGATED CUTWORM (Peridroma saucia) 31, YELLOWSTRIPED ARMYWORM (S. ornithogalli) 1. FLORIDA - Gainesville, 3/14-20, BL, ARMYWORM (Pseudaletia unipuncta) 7, black cutworm 3, FALL ARMYWORM (S. frugiperda) 1, GRANULATE CUTWORM (Feltia subterranea) 22, variegated cutworm 1, yellowstriped armyworm 1.

HAWAII INSECT REPORT

General Vegetables - Heavy ONION THRIPS (Thrips tabaci) infestations found in several backyard plantings of green onions at Ewa, Oahu. More than 10 found on each sampled stalk. Damage heavy, 90-100 percent of plants severely damaged. CHINESE ROSE BEETLE (Adoretus sinicus) damage heavy to snap beans and eggplant in most backyard gardens at Ewa, Oahu. About 40-60 percent of leaves damaged. Single adult of a SPHINGID MOTH (Theretra nessus) collected at large at Waikapu, Maui, March 8, 1975. Collector not given. This is a new island record. This sphingid has now been recorded from Oahu, Kauai, and Maui. Most Dioscorea plantings at Ewa, Oahu, harvested in past month. No Theretra larvae found on unharvested yam plants. (Miyahira, Mau).

Fruits and Ornamentals - Single adult OLEANDER HAWKMOTH (Deilephila nerii) collected at Kapaa, Kauai, February 26, 1975. Collector not given. Subsequent survey March 13, 1975, showed moth established on Kauai. Five larvae discovered on oleander plants at Kapaa, Kauai. Other roadside oleander plantings uninfested. This is a new island record. This insect now found on Oahu and Kauai. Heavy infestation also noted on several crepe gardenia plants at Honolulu, Oahu. Foliar damage severe. At least 40 large larvae collected within few minutes. (Sugawa et al.). Severe HEMISPHERICAL SCALE (Saissetia coffeae) infestations noted on crepe gardenia plants at Kapaa, Kauai, March 13, 1975. Scale covered nearly all available bark area. Sooty mold covered the gardenia leaves and foliage under gardenia plants. Cryptolaemus montrouzieri and Azya obigera (lady beetles) were abundant on the foliage and larvae appeared to be feeding on the scales. (Sugawa et al.).

DETECTION

New County and Island Records - AN ARMORED SCALE (Rhizaspidiotus dearnessi) WISCONSIN - Wood, Jackson (p. 252). CARPENTERWORM (Prionoxystus robiniae) SOUTH CAROLINA - Spartanburg (p. 243). CASEMAKING CLOTHES MOTH (Tinea pellionella) SOUTH CAROLINA - Aiken (p. 245). GRAY FIELD SLUG (Deroceras laeve) ARIZONA - Maricopa (p. 254). OLEANDER HAWKMOTH (Deilephila nerii) HAWAII - Kauai Island (p. 246). PITCH MASS BORER (Vespamima pini) NORTH CAROLINA - Haywood (p. 256). A SPHINGID MOTH (Theretra nessus) HAWAII - Maui Island (p. 246).

CORRECTIONS

CEIR 25(12):209 - SMALL FRUITS - "A BOSTICHID BEETLE ..." should read "A BOSTRICHID BEETLE ..."

CEIR 25(11):189 - Last line ... "Pediobius fovealatus." should read "... Pediobius foveolatus."

CEIR 25(11):188 - Third paragraph "GRASSHOPPERS ... Melanoplus differentials ..." should read "GRASSHOPPERS .. Melanoplus differentialis ..."

CEIR 25(1-5):6 - FORAGE LEGUMES - ALFALFA WEEVIL (Hypera postica) - KENTUCKY - "... 134.3 per square foot in Warren County ..." should read "... 134.3 per square foot in Barren County ..." (Barnett).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1974

(Continued from page 227)

DECIDUOUS FRUITS AND NUTS

Highlights:

PEACHTREE BORER infestations were heavy in South Carolina on peaches and other crops. Extensive damage by FALL WEBWORM was noted in North Carolina on pecans and other crops. A TORTRICID MOTH was found throughout the apple-growing area of Michigan. Infestations of a GEOMETRID MOTH was less severe in Pennsylvania than in 1973. WHITE APPLE LEAFHOPPER increased in western Maryland apple-growing areas. SAN JOSE SCALE increased in importance in western Maryland apple acreage. Heavy midseason populations of WHITE PEACH SCALE were noted in Florida peach orchards. EUROPEAN RED MITE populations and injury levels remained stable for the past 3 years in Maryland, population explosion observed in Michigan, and very heavy populations were noted in some Washington orchards. Heavier than normal MCDANIEL SPIDER MITE populations were noted on peaches and cherries in Washington. Heavy PECAN WEEVIL infestations were noted in Texas. Extremely heavy late-summer PEAR PSYLLA populations occurred on pears in Oregon. BLACK PECAN APHID and other aphids were serious pests of pecans in Alabama.

PEACHTREE BORER (Sanninoidea exitiosa) infestations were heavy in a 12 to 15-year-old orchard in Edgefield County, SOUTH CAROLINA. Heavy damage to 15-20 acres of peach trees was noted in May. This species, along with Synanthedon pictipes (lesser peachtree borer), was one of the most destructive pests of peach, plum, and cherry trees throughout ALABAMA. Peachtree borer infestations were reported in plum and peach trees in Payne, Tulsa, Haskell, Comanche, and Garvin Counties, OKLAHOMA.

Observations and reports during the period August 1-20 revealed extensive damage by FALL WEBWORM (Hyphantria cunea) to pecan, persimmon, sourwood, hickory, and cherry in NORTH CAROLINA. This is second year of heavy infestations in Ashe, Watauga, and Avery Counties in the northwest area of the State. Observation along U.S. Highway 64 and Interstate Highway 40 from Wake County to Macon County revealed 50+ percent of the persimmon trees (5+ feet in height) infested with 1-10 webs per tree August 3 from Davidson County to McDowell County. The infestation was generally light in the southwestern mountain area.

EASTERN TENT CATERPILLAR (Malacosoma americanum) larvae were active on fruit and wild plum trees in OKLAHOMA by mid-March and continued through early May. Moderate to heavy infestations were reported from the east-central and southeast counties and a few other counties in the eastern half of the State.

GREEN FRUITWORM (Lithophane antennata) larvae were active in MICHIGAN as far north as Benzie County by May 24. This noctuid is normally of minor economic importance; however, it is worth noting that in some areas of the State, such as the Hart and Shelby area of Oceana County, L. antennata was more of a problem than for the past several years.

CODLING MOTH (*Laspeyresia pomonella*) adult emergence in MICHIGAN, as indicated by pheromone traps, began May 20 in the southwest district, May 22 in the Grand Rapids area, and the following week in the northern fruit-growing areas. Cool weather in June lengthened emergence of first-generation adults. Second-generation emergence was erratic. Control appears to have been good this season.

In the southwest district of MICHIGAN, REDBANDED LEAFROLLER (*Argyrotaenia velutinana*) moth emergence began April 11 and ended by May 31. Populations decreased slightly from those of 1973, with most problems occurring in those orchards with a past history of problems.

Prior to 1973, a TORTRICID MOTH (*Platynota idaeusalis*) was not known to be a pest of apples in MICHIGAN. To determine its distribution, pheromone traps were utilized. Adult emergence began May 19 in the southwest district. This potential pest was found throughout the apple-growing region. It was found to be more abundant in the southwest district where trap counts averaged 40 moths per trap during the week ending June 17. Damage to apples was minimal, however, which may be due to its capability to develop on a variety of host plants.

The severity of infestations of a GEOMETRID MOTH (*Hydria prunivorata*) in PENNSYLVANIA was much less in 1974 than in 1973. Heavy defoliation of cherry was noted on only 16,000 acres in Elk County. Defoliation was light to moderate on an additional 165,000 acres. In McKean County, only 70 acres had heavy and about 1,500 acres had moderate defoliation. Very light and light defoliation was detected on about 130,000 additional acres. In Indiana County, defoliation occurred on 6,428 acres. This species was noted in part of the central area but defoliation was light.

WHITE APPLE LEAFHOPPER (*Typhlocyba pomaria*) populations and injury levels increased in western MARYLAND apple-production areas. The trend started three years ago and in 1974 about 1,000 acres required controls during June, July, and August. Most of the heavy injury was centered in the Smithsburg area of Washington County. Populations are expected to increase in 1975. Presently registered insecticides are not providing adequate control of this leafhopper. Nymphs of white apple leafhopper were first sighted May 8 in Berrien County, MICHIGAN, and not until June 10 in Benzie County. Adults were first observed in the Grand Rapids area June 13. The first-generation populations was generally lighter in the southern portion of the State, resulting in a smaller second generation which emerged later than normal. Leafhoppers were generally not serious in those areas that have had problems the past few years; however, problems were more severe from the Fremont and Shelby areas, northward.

APPLE APHID (*Aphis pomi*) populations in MICHIGAN began to build up July 1 on succulent growth, often resulting in numerous colonies despersed throughout individual trees. During the period July 29 to August 2 infestations began to decrease. Aphid predators were more numerous this season than in recent years.

SAN JOSE SCALE (*Quadraspidiotus perniciosus*) has increased in importance and spread into several new orchards in western MARYLAND production areas. An estimated 15 percent of the apple acreage hosted economic levels in 1974. In most orchards these infestations developed because of inadequate spray coverage, rather than a failure of the insecticide or spray schedule. With slight changes in treatment practices this trend should decrease over the next two years in commercial apple orchards. However, the trend will increase in small orchards and home plantings due to poor diagnosis of the situation.

WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) was the number one problem in FLORIDA peach orchards in 1974. Due to inadequate chilling, there was very poor fruit set in many northern peach orchards and consequently the growers neglected early season sprays. This, probably along with a relatively high overwintering survival rate, resulted in heavy midseason populations that were inadequately controlled for the rest of the season. First-generation crawlers were present in the Gainesville area of Alachua County by the first week of February. Crawlers were heavy the last half of February and into March. Second-generation crawlers became apparent the first of May and peaked at Gainesville by mid-May.

PEAR PSYLLA (*Psylla pyricola*) has become more troublesome over the past two years in commercial and home pear plantings in MARYLAND. About 120 acres required special controls during the 1974 season.

EUROPEAN RED MITE (*Panonychus ulmi*) populations and injury levels on apples have remained stable over the past three years in MARYLAND. Isolated moderate increases were spotty throughout the State and appeared irregularly during the season. Present control practices are adequate for control of this species. A cool May followed by a wet June kept European red mite populations light in MICHIGAN. Hot, dry weather in July resulted in population explosions during the later part of July and early August in some orchards. In general, mite problems began later than normal, especially in orchards using a prebloom oil spray, and problems were not as serious as usual. *Amblyseius fallacis* (a phytoseiid mite), a predator of *P. ulmi*, appeared in trees very late in 1974. Therefore, as *P. ulmi* populations built up, miticides were generally needed for control.

P. ulmi infestations in WASHINGTON were sporadic. The first nymphs appeared April 2 in the lower Yakima Valley, heavy populations did not develop until late June and after. Very heavy populations were noted in some Columbia Basin orchards. This species was particularly troublesome in orchards with over-tree sprinkler irrigation systems.

MCDANIEL SPIDER MITE (Tetranychus mcdanieli) infestations were not observed until late June in most Yakima Valley orchards in WASHINGTON. Heavy populations were noted from mid to late July. Heavier than normal populations were reported on peaches and cherries, and damaging populations were reported on pears. Populations at Green Bluff, Spokane County, were much lighter than in 1973.

APPLE MAGGOT (Rhagoletis pomonella) adult emergence in MICHIGAN was first reported July 3 at Kalamazoo, Kalamazoo County, and within 14 days emergence had begun throughout the western area of the State. Due to exceptionally dry conditions, emergence occurred over a long period resulting in the need for chemical control late into the season in those orchards with a pest problem.

The first PECAN NUT CASEBEARER (Acrobasis nuxivorella)* eggs were found in Love County, OKLAHOMA, May 20. Oviposition continued in northern areas through the first week of June. Larval infestations ranging up to 80 percent were reported in some areas by the end of June. This was partly due to the light nut crop in 1974. Moderate to heavy damage by the second generation was reported in Payne, Lincoln, and Seminole Counties in mid-August. Bands were placed on trees in many TEXAS areas to detect pecan nut casebearer adult emergence during April. The first reports of moth emergence were received from Guadalupe County in late April. No significant emergence was reported until a later date in Maverick, Uvalde, Edwards, and Medina Counties. Spring-brood adult emergence continued and was essentially completed statewide by late May. Much damage occurred where treatments were not applied during 1974.

Scattered moderate to heavy WALNUT CATERPILLAR (Datana integerrima) infestations were found on pecan trees in some OKLAHOMA Counties in late June and early July. Light to heavy populations defoliated pecans in some south-central TEXAS counties. Pecan damage was reported from throughout this area; however, the infestation was considerably lighter than in 1973.

FALL WEBWORM (Hyphantria cunea) adult activity and oviposition began in OKLAHOMA in mid-May and moderate to heavy larval infestations were present on pecan and other trees in the north-central and east-central areas during June and July. Second-generation activity was very light in all areas of the State.

HICKORY SHUCKWORM (Laspeyresia caryana) infestations were heavy on pecans in Payne and Love Counties, OKLAHOMA, from mid-August to mid-October. Damage ranged up to 90 percent.

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*Meunzig, H.H. 1970. Ann. Ent. Soc. Amer. 63:1656-1664, and 1972. USDA Tech. Bul. 1457, pp. 28-34.

Heavy local PECAN WEEVIL (Curculio caryae) infestations were present in some north FLORIDA pecan orchards. Infestations in MISSISSIPPI pecans were below those of 1973. The first weevils caught in emergence traps were in Wilkinson County the third week of August. In Hinds County, weevils began emerging the last week of August. In Quitman County, weevils began emerging the second week of September. Particularly heavy infestations were noted in Comanche, Hamilton, and other surrounding counties in the Cross Timbers area of TEXAS. Emergence began about August 15. Pecan weevil adult emergence began in Love County, OKLAHOMA, in late July but heavy emergence did not occur until the second week of August following general rains. Heavy emergence continued through the end of August. Heavy infestations of up to 60 percent of the light nut crop were reported in most areas during September. Larvae were beginning to leave the nuts by early October in Love County.

WALNUT HUSK FLY (Rhagoletis completa) is now present in all walnut-growing areas of OREGON. Local populations and numbers of infested trees increased in 1974 with growers in some areas of Benton and Linn Counties reporting infestations of outbreak proportions. Flies emerged in Willamette Valley orchards July 31 and peaked August 9. The last adults were taken in bait traps October 2. Treatments were required in commercial walnuts in most areas of CALIFORNIA.

The overwintering PEAR PSYLLA (Psylla pyricola) population in the Hood River Valley of Hood River County, OREGON, was about average. The first eggs were found February 11. Dormant sprays resulted in about 85 percent mortality valleywide. A cool spring and early summer prevented psylla buildup in treated pear orchards until late July. Extremely heavy late-summer populations caused many complaints from growers and pickers during the last part of the Anjou harvest. Most orchards suffered some defoliation by early October. The overwintering population was one of the heaviest in years with counts of 23-37 psyllids per tray found in late November at Hood River. Predormant spray populations in the Rogue River Valley averaged about 10 psyllids per tap. The first chemical treatment was applied in late January and the first eggs found February 7. Treatment gave good control of overwintering psyllids, averaging about 95 percent valleywide.

BLACK PECAN APHID (Tinocallis caryaefoliae), along with Monellia costalis (blackmargined aphid) and Monelliopsis nigropuncta were serious pests of pecans in south and central ALABAMA. The combined effect of damage to foliage by aphids, mites, and dry weather, along with several related diseases, was a major problem of the 925,000 pecan trees grown in the State. Quantity and quality of the nuts was reduced from 41,000,000 pounds in 1973 to about 17,000,000 in 1974. Potential yields for 1975 have probably been reduced due to heavy defoliation in late 1974.

BLACKMARGINED APHID (Monellia costalis) infested pecan trees in most areas of OKLAHOMA during July and August, with heavy populations reported in several southwest, south-central, east-central and north-central counties.

PECAN PHYLLOXERA (Phylloxera devastatrix), as in 1973, caused moderate to heavy damage to pecans in western TENNESSEE.

CITRUS

CITRUS RUST MITE (Phyllocoptruta oleivora) continued to be the number one pest of citrus in FLORIDA. Population densities were generally heavier in 1974 than for the last 3 years, being especially heavy during fall on citrus in most of the ridge belt, with populations continuing above normal into December. Densities were light in the Indian River area (St. Lucie County and portions of Indian River County). The concentrations of mites on citrus leaves in the ridge area were much greater than in the Indian River areas. In addition to the east coast, lighter activity was noticed also on the north edge of the citrus belt and south around Lake Okeechobee.

CALIFORNIA RED SCALE (Aonidella aurantii) infested a 15-acre commercial lemon grove in early January in the Yuma Valley of Yuma County, ARIZONA. This is the first time a commercial grove in Yuma County has been found infested by this species. Exploding populations of this scale insect, with severe damage to trees, was noted in many areas of CALIFORNIA. Normally, biological control agents have held this pest in bounds. This upsurge is probably due to the severe freeze in 1972 affecting beneficial insect populations.

Larvae of a NOCTUID MOTH (Xylomyges curialis) damaged the skirt growth of citrus trees on the western side of the Salt River Valley in Maricopa County, ARIZONA, during late March through April. This species is seldom observed in the State.

SMALL FRUIT

AN ARMORED SCALE (Rhizaspidiotus dearnessi) was taken from cranberries in Wood and Jackson Counties, WISCONSIN, in May 1973. Collected and determined by J.O. Jackson. These are new county records.

Many OBSCURE ROOT WEEVIL (Sciopithes obscurus) adults were observed on blueberry crops in Thurston County, WASHINGTON. Although no damage was noted, there is concern for the 1975 season.

TWOSPOTTED SPIDER MITE (Tetranychus urticae) was light, ranged 0-1 per leaf, during fall in FLORIDA. Infestations were heavy, ranged 50-100 per leaf, during spring on strawberry at Bradenton, Manatee County, and Dover, Hillsborough County.

ORNAMENTALS

Highlights:

MIMOSA WEBWORM larvae were heavy on mimosa in Delaware and continued to be important in Arkansas. SPRUCE BUDWORM larval populations were the heaviest noted in recent years in Vermont ornamental spruce and balsam fir plantations. NANTUCKET PINE TIP MOTH was very heavy in Maryland and caused heavy tip injury. Serious foliage damage to spruce by SPRUCE NEEDLEMINER was noted in Kansas. BAGWORM damage to native cedar ranged heavy to severe in Tennessee, and infestations were heavy in Arkansas and Oklahoma. ZIMMERMAN PINE MOTH was troublesome in Minnesota. A JAPANESE WEEVIL poses a potential serious problem in Maryland in 1975.

MIMOSA WEBWORM (Homadaula anisocentra) first-generation larvae were heavy on mimosa throughout DELAWARE during late June and early July. This species continued to be an important pest of mimosa in ARKANSAS. Due to lack of treatments, these ornamentals became very unsightly. The earliest larval feeding signs occurred in the central area in early July. Feeding continued and became heavier as the season progressed. Mimosa webworm moths were active by late May, but first-generation larvae caused only light damage in most areas of OKLAHOMA. Second-generation larvae were active by late July and damage to mimosa increased considerably during August and September.

SPRUCE BUDWORM (Choristoneura fumiferana) caused light defoliation in ornamental spruce and balsam fir plantations in VERMONT. Larval populations were the heaviest seen in recent years. Heavy adult flights and egg deposition were observed throughout the State. An increase in spruce budworm activity is expected in 1975.

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) was very abundant and caused heavy tip injury in several areas on the Eastern Shore and central area of MARYLAND for the third successive year. Loblolly, Virginia, and several other ornamental pine species were damaged in nurseries in 1974. The heaviest second-generation infestation damaged 60-90 percent of the tips in August. Heavy damage and increased populations are expected for 1975 in southern Maryland and throughout the Eastern Shore. Areas west of Frederick County are expected to be only very lightly infested. Experimental treatments in 1974 using Bacillus thuringiensis appeared equally effective as the organo-phosphate used for control. SPRUCE NEEDLE MINER (Taniva albolineana) caused serious foliar damage to ornamental spruce in Douglas, Franklin, Johnson, and Brown Counties, KANSAS, during mid-April.

BAGWORM (Thyridopteryx ephemeraeformis) has been the most frequently encountered ornamental pest over the past three years in MARYLAND. This pest is very widespread and caused heavy defoliation of junipers when not controlled by mid-June. Bagworm caused heavy to severe damage to native cedar in several localized areas of TENNESSEE. Many home plantings of evergreens were also severely damaged. Infestations occurred as usual and were heavy in northwest ARKANSAS. Observations were made of the loss of several evergreens at Fayetteville, Washington County, due to this pest. Bagworm larvae were hatching in Jackson County, OKLAHOMA, by late April and in most other areas of the State by early May. Moderate to heavy infestations were present on evergreens in many areas in mid-May and continued through August. Pupation was complete and males were emerging in Payne County by mid-September.

A JAPANESE WEEVIL (Pseudocneorhinus bifasciatus) appears to be steadily increasing in MARYLAND and could prove to be a serious problem in the near future. There is no insecticide currently labeled for control. Most reports of moderate to heavy damage are received from the central area of the State.

BRONZE BIRCH BORER (Agrilus anxius) was a threat to all ornamental European white and paper birch trees in MINNESOTA. River birch seems resistant to attacks.

TEA SCALE (Fiorinia theae) was noted as the most destructive and widespread scale insect in ALABAMA. It was observed in all counties on camellia and Burford holly throughout the year.

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) was very troublesome in MINNESOTA ornamental plantings during 1974. Favored hosts included Austrian, Scotch, and Norway pines, but the pest was also found in other species of pines. Larger trees in the many windbreak and Christmas tree plantations in the State became host trees and a source of infestation for ornamental trees near surrounding homes and to nearby nursery stock.

GRAY FIELD SLUG (Deroceras laeve) was collected at a nursery in Phoenix, Maricopa County, ARIZONA, in early February by D. Carver. Determined by J. Bequaert. This is a new county record. This slug is most commonly found at 4,500-foot elevations in the southern area. Nursery stock is thought to be the hiding place for these introductions noted at Tucson, Pima County, and at Nogales, Santa Cruz County.

FOREST AND SHADE TREES

Highlights:

SPRUCE BUDWORM was heavy and required treatment on about 430,000 acres of spruce and fir in Maine. Moth flights were heavy in New Hampshire and Michigan. Severity increased in Pennsylvania. Defoliation by JACK PINE BUDWORM light to severe on jack pine in Wisconsin. Predicted serious DOUGLAS FIR TUSSOCK MOTH defoliation lighter than expected. WESTERN SPRUCE BUDWORM infestations more than doubled in Washington. TORTRICID MOTHS defoliated more than 190,000 acres of fir and lodgepole pine in California. SOUTHERN PINE BEETLE caused one of the worst years on record in North Carolina. In South Carolina 4,899 new spots recorded. DOUGLAS FIR BEETLE destroyed over 9.8 million board feet of Douglas fir in Oregon. ENGRAVER BEETLES caused majority of pine tree losses in Florida. A BOSTRICHID BEETLE reared out of carob tree limb in Arizona for first time. PINE ROOT COLLAR WEEVIL infestations expected to continue in severity in Michigan in 1975. FALL WEBWORM defoliation extremely heavy in Vermont. The second year of heavy FALL CANKERWORM defoliation noted in Maryland and severe defoliation noted in South Dakota. No treatments expected necessary in Minnesota in 1975 for SPRING CANKERWORM. Extensive EASTERN TENT

CATERPILLAR populations decreased in Maryland and Kentucky. FOREST TENT CATERPILLAR defoliation noted in South Carolina. OAK LEAF SKELETONIZER very heavy in Michigan. Over 23,000 acres of sugar maple trees suffered moderate to heavy defoliation in Vermont by MAPLE LEAFCUTTER. ELM LEAF BEETLE continued defoliation, serious damage, and population increases in Alabama, Arkansas, Nebraska, and Texas. BRONZE BIRCH BORER was serious on ornamental shade trees in Michigan and expected to reoccur in 1975.

Treatment of about 430,000 acres of SPRUCE BUDWORM (*Choristoneura fumiferana*) infested spruce and fir in northern and eastern MAINE was completed on schedule in June 1974. Larval mortality in the treated area was 95 percent. Larval feeding was widespread. Heavy populations and most of the damage occurred on spruce and fir in the northern area where reddening of the trees was striking over millions of acres in July and August. Heavy moth flights occurred statewide in mid-July and also as far south as the Portland area and at Kittery. Moth flights were much heavier in the more northerly locations. Populations were still heavy and spreading and many trees may die if further treatment is not applied in 1975. Surveys have been made to delimit the problem areas for 1975. Adult flights were heavy throughout NEW HAMPSHIRE, with millions of moths estimated in flight July 12-19.

Spruce budworm has persisted several years in PENNSYLVANIA and were more severe in 1974 than 1973. Heavy defoliation occurred on 8,900 acres in Cameron County, 3,500 acres in Elk County, and 500 acres in Clearfield County. About 2,000 acres in northern Centre County were lightly defoliated. Some blue spruce at a State park in Clearfield County and hemlock at a State park in Cambria County were also defoliated. The heavy moth population in several western counties in mid-July apparently originated in Canada. Heavy moth flights occurred over much of the Lower Peninsula of MICHIGAN. The source is unknown but it is suspected that severe storms carried moths across Lake Michigan from infested areas to the west. Flights occurred July 14-16 and moths were observed from about 6 days afterwards. Oviposition occurred but the extent had not been documented. A cursory survey was conducted during fall 1974 but the potential for problems in 1975 had not been determined.

Spruce budworm winter survival was 90 percent in Forest and Oneida Counties, WISCONSIN, with populations spreading through the Nicolet National Forest toward Vilas County. By May 30, second-instar larvae were found in expanding balsam buds in Oneida County, and were in the fifth instar June 14 and pupated by July 10. As of July 31, eggs had started to hatch in Oneida County with some parasitism observed. Moths were plentiful in several areas of MONTANA, although no heavy infestations were noted outside National forest areas. Some spruce trees were infested in Missoula, Park, Madison, Roosevelt, and Gallatin Counties.

JACK PINE BUDWORM (Choristoneura pinus) larvae were noticed feeding on jack pine in Douglas County, WISCONSIN, May 31. By the second week in June, 20 percent of the larvae were third instar with the rest in the second instar in Douglas and Bayfield Counties. As of June 18 in Polk County, 30 percent of the larvae were parasitized. Pupation was 85 percent by July 8 and defoliation was light to severe in Gordon Township of Douglas County. A potential for a full-scale outbreak exists in Douglas and Bayfield Counties in 1975.

Serious infestations of DOUGLAS FIR TUSSOCK MOTH (Orgyia pseudotsugata) in IDAHO were predicated in the fall for 1974 in Kootenai, Benewah, Latah, Clearwater, Nez Perce, Idaho, and Camas Counties which included 109,700 acres. Infestations were lighter than anticipated, however, 72,254 acres were treated. There appear to be no large areas of forests where this pest will be of great concern during 1975.

WESTERN SPRUCE BUDWORM (Choristoneura occidentalis) infestations more than doubled in WASHINGTON since 1973. Slightly more than 0.5 million acres of Douglas and true fir were defoliated to some extent. Damage occurred primarily in the Okanogan and Wenatachee National Forests and the North Cascades National Park.

TORTRICID MOTHS, Choristoneura viridis and C. lambertiana, continued to defoliate about 190,000 acres of fir and lodgepole pine in Modoc County, CALIFORNIA. Chemical treatments were applied in five test areas.

PITCH MASS BORER (Vespamima pini) was collected March 9, 1974, from Virginia pine near Canton, Haywood County, NORTH CAROLINA, by W.D. Conrad. Determined by D.L. Stephan. This is a new county record.

SOUTHERN PINE BEETLE (Dendroctonus frontalis) in NORTH CAROLINA caused one of the worst years on record for damage, with 81 of 100 counties infested according to a survey conducted during July 1974. Infestations occurred in 60 counties in July 1973 and 71 counties in January, 1974. The infested area increased from 5 million acres in 1972 to 16 million acres during July 1974 on private and government-owned lands. The number of infested spots ranged upward to 1,000 spots per county with spot size ranging from 1 tree to 1,000+ acres.

Aerial surveys for southern pine beetle were conducted from July to October during which 4,899 new spots were recorded in SOUTH CAROLINA. The volume of killed trees in these spots is estimated at about 222,000 cords and 100,000,000 board feet. Stumpage value, based on current prices, is placed at 10 million dollars. The presently killed volume is very close to the estimate for the same period in 1973; however, the gross acreage affected has more than doubled. The current southern pine beetle infestation covers 7,864,200 gross acres in 28 counties. Salvage, the primary suppression method in the State, continued steadily. From July to October, salvage averaged almost 19,000 cords and 1,400 board feet per month. Salvage to date has been excellent considering the current sawtimber market. The prospect of pulpwood salvage continues to look good but a marked decline is expected in sawtimber salvage due to the currently existing off-market conditions.

Based on recent aerial and ground surveys, the beetle population activity ratings have been assigned to each county. This rating system (low, moderate, high, very high) reflects the relative spread potential in the area and the population intensity. The areas of greatest concern continue to be the coastal counties, especially Horry and Georgetown where losses and beetle populations are extremely high. A high rating has been given to the entire counties of Anderson, Laurens, McCormick, York, Chester, Fairfield, Lancaster, and Charleston and parts of Edgefield and Kershaw Counties. Only small segments of Jasper, Beaufort, and Dorchester Counties received a low rating. The importance of winter salvage cannot be overstressed. During this period, southern pine beetle adults begin to concentrate in brood trees in much smaller spots, and activity and populations will decrease to their lowest levels. Salvage then has its greatest effect in reducing the potential spring populations to manageable levels.

The only southern pine beetle outbreak in FLORIDA occurred in Walton County during November and December. Pratically all 250 acres of pines, primarily loblolly, spruce pine, slash, longleaf, and sand pine, were killed. During the first half of 1974, beetle activity was found in 18 counties in MISSISSIPPI with 2,000,000 acres affected. Activity was found in two new counties, Monroe and Itawamba. A total of 34,276 trees were salvaged on 185.4 acres. Dendroctonus frontalis continued to damage pine in ARKANSAS. This species poses the greatest threat to pine. Salvage operations were implemented in Ashley, Bradly, Drew, and Union Counties.

WESTERN PINE BEETLE (Dendroctonus brevicomis) infestations continued in central OREGON stands of mature and overmature ponderosa pine killing about 7 million board feet of lumber on the Fremont, Ochoco, Malheur, and Winema National Forests.

DOUGLAS FIR BEETLE (Dendroctonus pseudotsugae) destroyed over 9.8 million board feet of Douglas fir throughout OREGON in 1974. The most extensive outbreaks occurred in the Mt. Hood, Umpque, Willamette, and Gifford Pinchot National Forests.

ENGRAVER BEETLES (Ips spp.) again caused the majority of pine tree losses in FLORIDA. A statewide forest pest survey was conducted in late July and early August. Total overall tree mortality in mostly the northern area survey blocks decreased about 4 percent. Mortality in the survey block roughly between the Suwannee and Apalochicola Rivers increased about 10 percent. Ips spp. continued their toll of pine trees in Bay Hill and other new development areas in the vicinity of Orlando.

PINE ROOT COLLAR WEEVIL (Hylobius radicis) is presently the most severe problem of coniferous plantations in MICHIGAN. Many plantations, particularly those poorly maintained, are 80-90 percent infested. Standard control procedures are still effective, but many plants have been abandoned creating a reservoir of infested trees. This situation will continue in severity in 1975.

Larvae of A CONIFER SAWFLY (*Neodiprion taedae linearis*) were active on loblolly pine from late March through mid-April in Oktibbeha and Lowndes Counties, MISSISSIPPI. Some heavy defoliation occurred but trees responded with quick regrowth.

EASTERN SPRUCE GALL APHID (*Adelges abietis*) was flocculent and emitting honeydew in Kenosha County, WISCONSIN, as of May 2, but no eggs had been laid. Oviposition had begun in Milwaukee County as of May 11, with hatch observed in Dane County by May 19. By the end of May, galls were reported forming with nymphs inside on spruce in western Dane County. COOLEY SPRUCE GALL APHID (*A. cooleyi*) eggs had begun to hatch on Colorado blue spruce and Douglas-fir in Dane County, Wisconsin, May 10. Aphids were out on new growth of Douglas-fir in Dane County and flocculence was just starting to form by the end of May. This aphid had moved from Douglas-fir by June 21.

FALL WEBWORM (*Hyphantria cunea*) was noted at very heavy population levels in NEW HAMPSHIRE. Almost all host plants favored by this pest were infested. Infestations in 1974 were lighter than those in 1973. This was apparently due to the lesser infestations on the lower story plants. Webs were conspicuous throughout VERMONT. Defoliation was extremely heavy in the lower Connecticut River Valley. This species is still common on many deciduous trees throughout DELAWARE with webs very noticeable during early August.

Heavy FALL CANKERWORM (*Alsophila pometaria*) defoliation was detected on Sugar Loaf Mountain and in several areas of Washington, Allegheny, and Garrett Counties of MARYLAND for the second year. Adult activity in November and December 1974 indicated that populations on Sugar Leaf Mountain are spreading and could cause greater damage in 1975 than the 2 previous years. Infestations on elms in SOUTH DAKOTA shelter belts resulted in severe defoliation in May and June. Up to 20 larvae per 2 feet of twig were reported. Treatments gave excellent control in mid-May with the exception of one when applied below temperatures of 70 degrees F.

Control of SPRING CANKERWORM (*Paleacrita vernata*) and *Alsophila pometaria* (fall cankerworm) were good in the Twin City area of MINNESOTA with the new biological insecticides. No treatments are anticipated for the 1975 spring season. Moth flights will be monitored to determine if this decision is correct. Male moths emerged in Cass County, NORTH DAKOTA, April 16. Larvae were defoliating trees in Minot by June 7. Larvae in Cass County were three-fourths inch long and had completely defoliated elm by June 14.

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) population levels continued into their second year of decline in MARYLAND. This trend is expected to continue into 1975. Egg hatch occurred in south-central KENTUCKY in early March. A slight decrease in populations statewide was noted in 1974. The average infestation in 1972 was 16.8 tents per mile driven and 10.2 per mile driven in 1973. The decreasing infestation trend continued in 1974 with tents averaging 7 per mile driven.

Second-instar eastern tent caterpillar larvae were observed in northern Dane and southern Sauk Counties May 7. By May 17, larvae in Green, Rock, and Racine Counties were either late first or early second instar with defoliation averaging under 20 percent. In late May, while damage in the southern districts averaged 35 percent, a site in Rock County had several trees with 80 percent defoliation. While larvae were migrating to pupate in Dane County June 2, tents averaged 7 inches in northern Marathon County with larvae up to 1.5 inches long in the north-central district. Larvae had pupated in southern areas by June 13 and had just started pupating in the north-central district by June 20. On July 3 oviposition was observed on *Prunus* sp. in Rock County.

FOREST TENT CATERPILLAR (*Malacosoma disstria*) caused unusually extensive defoliation at Middleton Place Gardens in Charleston and Dorchester Counties, SOUTH CAROLINA, in May. Larvae defoliated its preferred hosts, sweetgum, blackgum, and tupelo, throughout the 6,500-acre plantation and fed to a lesser extent on red oak, Most of the trees refoliated and no mortality is expected in 1975. Suppression measures may have to be taken in spring 1975 if the infestation continues. *M. disstria* moderately infested more than 10,000 acres of turkey oak during April in Marion County, FLORIDA.

OAK SKELETONIZER (*Bucculatrix ainsliella*) was very heavy over much of the southern Lower Peninsula of MICHIGAN and was of major concern to many homeowners. Heavy populations were noted in fall 1974 but their numbers could be reduced by early fall freezes which occurred during October. Should populations not be reduced by these fall temperatures this insect is expected to be a local problem again in 1975.

MAPLE LEAFCUTTER (*Paraclemensia acerifoliella*) caused moderate to heavy defoliation to sugar maple on over 23,000 acres in VERMONT. This is a decline from 1973 when 50,600 acres were defoliated. Most of the population decline occurred in the southern part of the State. No treatments were applied in 1974 and none are anticipated for 1975, even though this is the second season some sugar bushes were heavily defoliated.

Populations of VARIABLE OAKLEAF CATERPILLAR (*Heterocampa manteo*), *Symmerista canicosta* (a notodontid moth), *Anisota senatoria* (orangestriped oakworm), *Datana ministra* (yellownecked caterpillar), and several other notodontid moths declined drastically in MICHIGAN. Egg parasitism by *Trichogramma* sp. (a minute egg parasite) and *Telonemus* sp. (a scelionid wasp), larval parasitism by *Diradops bethunei* (an ichneumon wasp) and several tachina flies, and pupal parasitism by *Pimpla pedalis* (an ichneumon wasp) resulted in a population collapse of the several defoliators. There is a light resevoir population of these defoliators but no severe densities are anticipated for 1975.

OAK LEAFTIER (*Croesia albicomana*) second-instar larvae were mining expanding buds of red and northern pin oak in Menominee County, WISCONSIN, May 30. Defoliation of northern pin and red oaks was apparent from the air over 14 townships in Menominee, Oconto, Marinette, and southern Florence Counties June 27. Adults were observed in Bayfield, Menominee, Oconto, and Shawano Counties as of July 10.

A TORTRICID MOTH (Archips semiferanus) again infested oaks in the higher elevations of central and northwestern PENNSYLVANIA. About 140,000 acres were moderately to heavily defoliated in southern Elk, Cameron, and Clearfield Counties and an additional 75,000 acres were lightly to moderately defoliated. This is an increase from the 1973 defoliation. An area totaling 15,000-20,000 acres of private, State, and Federal lands was moderately and heavily defoliated at the western end of Forest County. In the south-central area 160 acres in Cumberland County, 390 acres in Adams County, and 80 acres in Franklin County were moderately defoliated. Egg mass surveys were conducted late in 1974 on about 250,000 acres in Clearfield, Elk, Cameron, and Forest Counties.

ELM LEAF BEETLE (Pyrrhalta luteola) continued to defoliate and do serious damage to elms on lawn and street plantings from central to northern ALABAMA. The longtime population increase and damage to elm continued in all areas of ARKANSAS. Treatments were very limited. Dutch elm disease, along with damage from P. luteola, resulted in the deaths of thousands of elm trees in all areas of the State. Adult elm leaf beetle populations in MICHIGAN were heavy in fall 1974 indicating that this insect was a nuisance by entering homes for hibernation. It is quite likely that this insect will again be a pest in 1975. American elm has not been preferred, but Chinese and European elms were severely damaged throughout the south-central Lower Peninsula. Large numbers of Siberian and American elms were defoliated throughout NEBRASKA during June, July, and August for the third consecutive year.

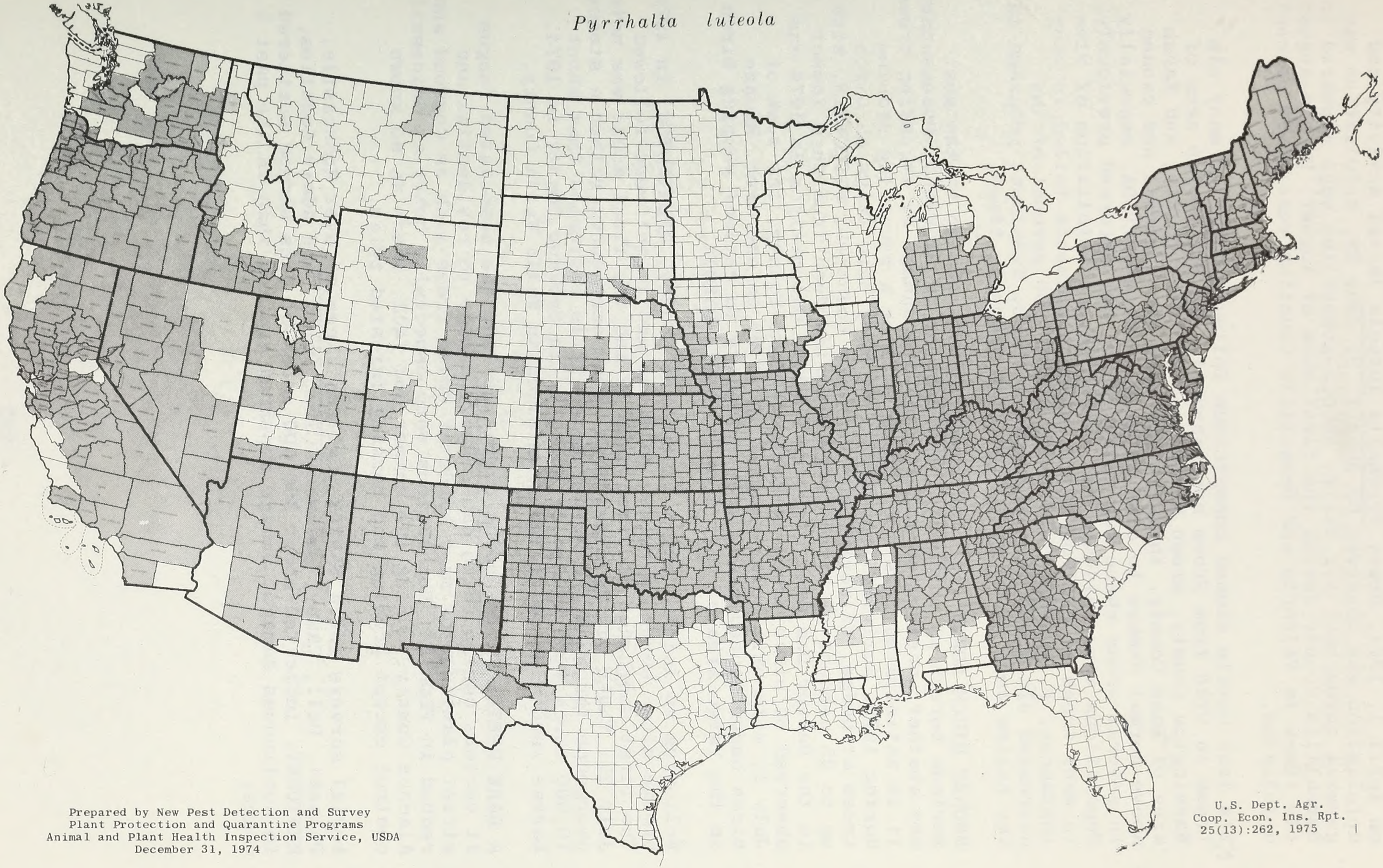
Elm leaf beetle caused heavy foliar damage to untreated Siberian elms throughout KANSAS in 1974. The first adults were seen in late April in Riley and Crawford Counties. First-generation eggs were reported hatching in Riley and Shawnee Counties in mid-May. Pupation began in early June in Riley County and most adults had emerged and second-generation oviposition was well underway by early July. By late July, pupation of the second generation had begun and foliar damage was very heavy in Riley County. Most second-generation adults laid no eggs, thus resulting in a small, partial third generation. Eggs and young larvae were noted in Riley County in mid-August. Adults began seeking overwintering quarters in late August. Activity was underway in most areas of OKLAHOMA by late April. Damage was heavy in McCurtain and Tillman Counties as early as mid-May, but was light to moderate in many areas until late July. Heavy damage occurred in many areas during August.

Heavy elm leaf beetle populations again occurred in the north-central, Rolling Plains, Trans-Pecos, and Panhandle areas of TEXAS. The heaviest damage was noted in Wilbarger, Winkler, Ward, Ector, Midland, and Martin Counties.

Populations almost completely defoliated Siberian elms in Bernalillo and eastern Valencia Counties, NEW MEXICO. Many trees had no undamaged leaves except for new undeveloped leaves at tips of twigs. Elm leaf beetle caused moderate defoliation in the Springer area and light damage at Raton, Colfax County, but remained light in Santa Fe and Torrance Counties. So far no evidence of this pest has been found in the Las Vegas area of San Miguel County. Adults were active at lights in Socorro County, NEW MEXICO,

Distribution of Elm Leaf Beetle

Pyrrhalta luteola



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on April 1, 1974. Heavy *Pyrrhalta luteola* larval activity and defoliation was observed by June 7. By June 28, defoliation was general throughout the State. Second-generation eggs appeared in Bernalillo County during the first week of August. By mid-August elm trees in Valencia and Bernalillo Counties were 75-90 percent defoliated.

Elm leaf beetle caused conspicious foliage injury to many elm trees in UTAH from Provo northward, in the St. George area of Washington County, Green River area of Emery County, and Kanab area of Kane County. Infestations were above normal and caused above-normal damage to elms in many areas of NEVADA, especially in several areas where heavy damage had not occurred previously. Populations were epidemic and caused severe defoliation of elms in many areas of CALIFORNIA. Chemical treatments failed in many instances. *P. luteola* defoliated almost 100 percent of the untreated elm trees in southwestern IDAHO. Treatment programs in the cities were quite effective when properly timed.

BRONZE BIRCH BORER (*Agrilus anxius*) continued to be the most serious borers of ornamental shade trees in MICHIGAN. Unseasonably dry weather accentuated infestation and damage by stressing trees. It is anticipated this wood borer will be a recurring problem during 1975. Activity from 1973 left many bare twigs on birch trees at Dodge, Walworth, and Waukesha Counties, WISCONSIN, with up to 25 percent of birch trees reported dead from this insect in the Beaver Dam area of Dodge County. Oviposition in 1974 was observed on birch trees in Madison, Dane County, the week of July 1, with exit holes ranging up to 29 on one tree. Bronze birch borer caused heavy tree mortality to cutleaf weeping birch in the Fargo area of Cass County, NORTH DAKOTA.

Following an initial alarm in Spokane County, WASHINGTON, in 1973, bronze birch borer emergence patterns and impact were followed. The first emergence occurred June 15 and the final adult was noted July 22. There was no significant peak emergence, rather a steady emergence throughout a 36-day span. It is estimated that about 10,000 birch were killed or infested in Spokane County in 1974. Larvae were also collected from birch in Walla Walla County.

A BARK BEETLE (*Xylosandrus campactus*) and the associated fungus it vectors continued to cause heavy damage to residential and street plantings of many kinds of shade trees such as dogwood and redbud in FLORIDA. Populations were especially heavy at Gainesville, Alachua County, during the summer and fall. There is no known control except pruning and burning infested twigs.

Aerial surveys for a SAWFLY (*Caliroa lineata*) over Rockcastle, Pulaski, Bell, Casey, Jackson, Clay, Perry, and Adair Counties, KENTUCKY, indicated about 350,000 acres of oaks showed scattered to continuous damage. Damage appeared greater than in the past 3 years.

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